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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,738	02/07/2002	Habib Vafi	112005	1395

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ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/683,738	VAFI ET AL.	
	Examiner	Art Unit	
	Constantine Hannaher	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-18 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not describe an *increase* in coolant flow rate when the detector panel temperature is *low*. Compare with claim 18.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "said narrow operating temperature range" in line 3. There is insufficient antecedent basis for this limitation in the claim. The last line of claim 3 establishes only "a operating temperature range." The balance of the claims is rejected on the basis of their dependence.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the

subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crawford *et al.* (US005970113A) in view of Nakagawa *et al.* (JP04315985A).

With respect to independent claim 1, Crawford *et al.* discloses a method for determining the temperature of a detector panel **130** having a plurality of photodiodes (column 11, line 49) in an x ray imaging system (*e.g.*, Fig. **4**) at the time an x ray image is taken which comprises the steps of measuring an offset image value for at least one of the plurality of photodiodes of the detector panel **130** taken for at least two known temperatures without x ray (column 17, lines 54-56), extrapolating an offset image value versus temperature curve for each of the measured offset image values for each of the plurality of photodiodes (in view of the temperature dependence characterization, also described as a "function," see column 17, lines 61-67), and storing the curve within a processing circuit **134** coupled within the x ray imaging system. However, the method of Crawford *et al.* determines the temperature of the detector panel **130** using a sensor **521**. Nakagawa *et al.* shows (Fig. **1**) that it is long known to determine the temperature of a photoelectric transfer element **101** in an x ray detection system by measuring an offset value taken without an x ray (and stored in element

109) and comparing it using a predetermined equation to stored data regarding offset and temperature characteristics. Since an external sensor is not required and the construction of the system is simplified, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Crawford *et al.* to specify that processing circuit **134** determined the temperature of the detector panel **130** by measuring a second offset image value taken without an x ray for at least one of the plurality of photodiodes as suggested by Nakagawa *et al.*

With respect to dependent claim 2, the measurement "before actual scanning" as taught by Crawford *et al.* is a range which encompasses the recited time which is sufficient to anticipate or make obvious the recited time.

8. Claims 3-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crawford *et al.* (US005970113A) in view of Nakagawa *et al.* (JP04315985A) and Sasaki *et al.* (US006411672B1).

With respect to independent claim 3, the measuring, extrapolating, storing, and determining steps are suggested by Crawford *et al.* and Nakagawa *et al.* as explained above in the rejection of independent claim 1. While the method of Crawford *et al.* does not comprise the direct control of temperature of the detector panel **130**, Sasaki *et al.* teaches that, in an x ray imaging system (Fig. **5**) comprising a detector panel **25** having a plurality of solid state detection elements, the provision of a coldplate **42** and a conditioner unit **41** fluidically coupled **43** with the coldplate is known. The conditioner unit **41** in the system of Sasaki *et al.* is capable of maintaining the detector panel **25** within an operating temperature range. Since the photodiodes in the method of Crawford *et al.* will experience the difficulties Sasaki *et al.* describes for solid-state detection elements at column 1, lines 39-50, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Crawford *et al.* to comprise the step of providing a coldplate and

conditioner as suggested by Sasaki *et al.* in order to avoid the problem of temperature nonuniformity. The closed-loop cooling system suggested by Sasaki *et al.* is controlled (column 5, lines 38-40). In view of the desire to avoid the problem of temperature nonuniformity described by Sasaki *et al.* it would have been obvious to one of ordinary skill in the art at the time the invention was made to electrically couple the processing circuit **134** of Crawford *et al.* with the conditioner suggested by Sasaki *et al.* in order to control the degree of heating and cooling. Although the method of Crawford *et al.* uses sensor **521** to determine the temperature of the detector panel, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Crawford *et al.* to specify that processing circuit **134** directed a signal to the conditioner unit suggested by Sasaki *et al.* on the basis of the temperature of the detector panel **130** determined by the suggestion of Nakagawa *et al.* to effect the control Sasaki shows is beneficial while omitting the sensors otherwise required by Crawford *et al.*

With respect to dependent claim 4, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the electrical signal from processing circuit **134** of Crawford *et al.* to the conditioner unit **41** suggested by Sasaki *et al.* would effect any control of the apparatus suggested by Sasaki *et al.* in view of the multiple elements and the "the degree of heating and cooling" desired.

With respect to dependent claim 5, the measurement "before actual scanning" as taught by Crawford *et al.* is a range which encompasses the recited time which is sufficient to anticipate or make obvious the recited time.

With respect to dependent claims 6, 7, 8, and 9 (as best understood), one of ordinary skill in the art must be presumed to know the manner of control suggested by Sasaki *et al.* (column 5, lines 38-40) and the recited procedures would have been obvious to one of ordinary skill in the art at the

time the invention was made in view of the "arbitrary type of coolant" and the control of "the degree of heating and cooling" described by Sasaki *et al.*

With respect to independent claim 10, Nakagawa *et al.* discloses a method comprising the steps of determining an amount of dark current (another name for leakage) exhibited by at least one photoelectric transfer element **101** immediately prior to x ray exposure. Crawford *et al.* teaches that it is typical for the photoelectric transfer element to be a photodiode (column 11, line 49) so it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the element **101** in the method of Nakagawa *et al.* was a photodiode in view of the effective performance in detecting x rays (both methods operate through the intermediary of a scintillator or fluorescent substance) and further that the element **101** was one of a plurality in view of the detector array **130** of Crawford *et al.* offering simultaneous reception of x rays in an x ray imaging system. While the systems of Nakagawa *et al.* and Crawford *et al.* do not have a conditioner unit or a coldplate, Sasaki *et al.* teaches that, in an x ray imaging system (Fig. **5**) comprising a detector panel **25** having a plurality of solid state detection elements, the presence of a coldplate **42** and a conditioner unit **41** within the system is known. Since the photoelectric transfer elements **10** in the method of Nakagawa *et al.* and the photodiodes in the method of Crawford *et al.* will experience the difficulties Sasaki *et al.* describes for solid-state detection elements at column 1, lines 39-50, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method suggested by Nakagawa *et al.* and Crawford *et al.* to comprise the step of controlling (column 5, lines 38-40) a conditioner unit and a coldplate as suggested by Sasaki *et al.* in order to avoid the problem of temperature nonuniformity. One of ordinary skill in the art must be presumed to know the manner of control suggested by Sasaki *et al.* (column 5, lines 38-40) and the recited procedure would have been obvious to one of ordinary skill in the art at the time the invention was made in view of

the "arbitrary type of coolant" and the control of "the degree of heating and cooling" described by Sasaki *et al.*

With respect to dependent claim 11, the measuring, extrapolating, storing, and determining steps are suggested by Crawford *et al.* and Nakagawa *et al.* as explained above in the rejection of independent claim 1.

With respect to independent claim 12, Crawford *et al.* discloses an x ray imaging system (*e.g.*, Fig. **4**) comprising a detector panel **130** having a plurality of photodiodes (column 11, line 49) and a processing circuit **134** electrically coupled with at least one of the plurality of photodiodes. While the system of Crawford *et al.* does not comprise a closed-loop cooling system, Sasaki *et al.* teaches in an x ray imaging system (Fig. **5**) comprising a detector panel **25** having a plurality of solid state detection elements that the presence of a coldplate **42** closely coupled with the detector panel and a conditioner unit **41** fluidically coupled **43** with the coldplate is known. The conditioner unit **41** in the system of Sasaki *et al.* is capable of maintaining the detector panel **25** within an operating temperature range. Since the photodiodes in the system of Crawford *et al.* will experience the difficulties Sasaki *et al.* describes for solid-state detection elements at column 1, lines 39-50, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Crawford *et al.* to comprise a coldplate and conditioner as suggested by Sasaki *et al.* in order to avoid the problem of temperature nonuniformity. The closed-loop cooling system suggested by Sasaki *et al.* is controlled (column 5, lines 38-40). The system of Crawford *et al.* determines the temperature of the detector panel **130** using a sensor **521**. In view of the desire to avoid the problem of temperature nonuniformity described by Sasaki *et al.* it would have been obvious to one of ordinary skill in the art at the time the invention was made to electrically couple the processing circuit **134** of Crawford *et al.* with the conditioner suggested by Sasaki *et al.* in order to

control the degree of heating and cooling. Although the system of Crawford *et al.* uses sensor **521** to determine the temperature of the detector panel, Nakagawa *et al.* shows (Fig. **1**) that it is long known to determine the temperature of a photoelectric transfer element **101** in an x ray detection system as a function of the amount of dark current (measured and stored in element **109**) generated. Since an external sensor is not required and the construction of the system is simplified, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Crawford *et al.* to specify that processing circuit **134** produced a signal representing the temperature of the detector panel **130** by measuring the amount of dark current generated by at least one of the plurality of photodiodes as suggested by Nakagawa *et al.*

With respect to dependent claim 13, the system of Crawford *et al.* has a stored offset value versus temperature curve (column 18, lines 6-8). Nakagawa *et al.* shows that measuring an offset value of the photoelectric transfer element without an x ray prior to acquiring an x ray and converting the offset value to a temperature value using an equation and the stored data of offsets and temperatures (see Constitution) is known. It would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the processing circuit **134** of Crawford *et al.* determined the temperature of the detector panel **130** by the measurement sequence suggested by Nakagawa *et al.* in view of the elimination of the temperature sensor **521**.

With respect to dependent claim 14, the system of Crawford *et al.* measures and stores the offset image values in the manner recited (column 17, lines 51-57). Process limitations cannot serve to impart patentability to structures. *In re Dike*, 157 USPQ 581, 585 (CCPA 1968). Methods of making a claimed product are immaterial in a product claim in view of *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985) and *In re Brown*, 459 F.2d 531, 173 USPQ 685 (CCPA 1972). It is axiomatic that the additional presence of process limitations, no matter how detailed, cannot impart

patentability to a product. *In re Pilkington*, 411 F.2d 1345, 162 USPQ 145 (CCPA 1969); *In re Johnson*, 394 F.2d 591, 157 USPQ 620 (CCPA 1968); and *In re Stephen*, 345 F.2d 1020, 145 USPQ 656 (CCPA 1965). Accordingly, the time of the measurement and storage is not a limitation on the system. Nevertheless, "before actual scanning" as taught by Crawford *et al.* is a range which encompasses the recited time which is sufficient to anticipate or make obvious the recited time.

With respect to dependent claims 15-18, one of ordinary skill in the art must be presumed to know the manner of control suggested by Sasaki *et al.* (column 5, lines 38-40) and the recited procedures would have been obvious to one of ordinary skill in the art at the time the invention was made in view of the "arbitrary type of coolant" and the control of "the degree of heating and cooling" described by Sasaki *et al.*

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (703) 308-4850. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ch
July 17, 2003

/Constantine Hannaher/
Primary Examiner